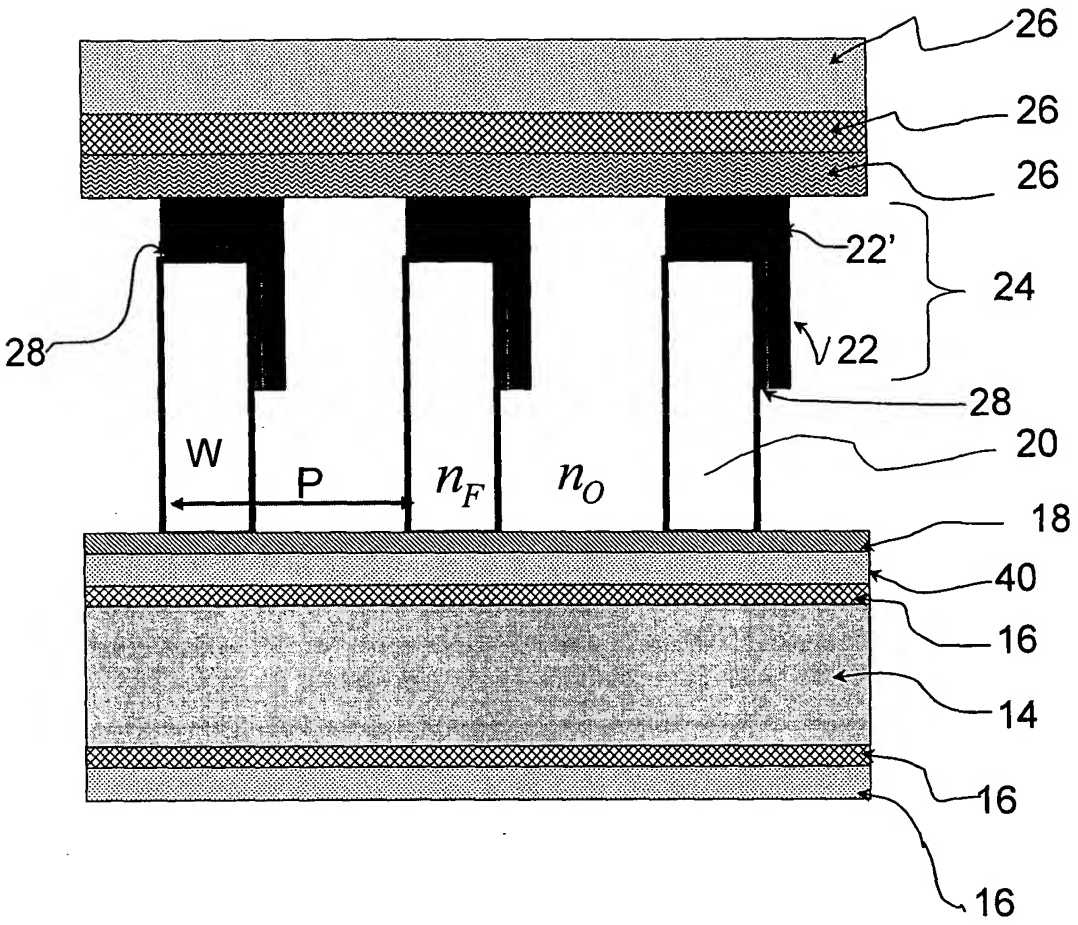

FIGURE 1.

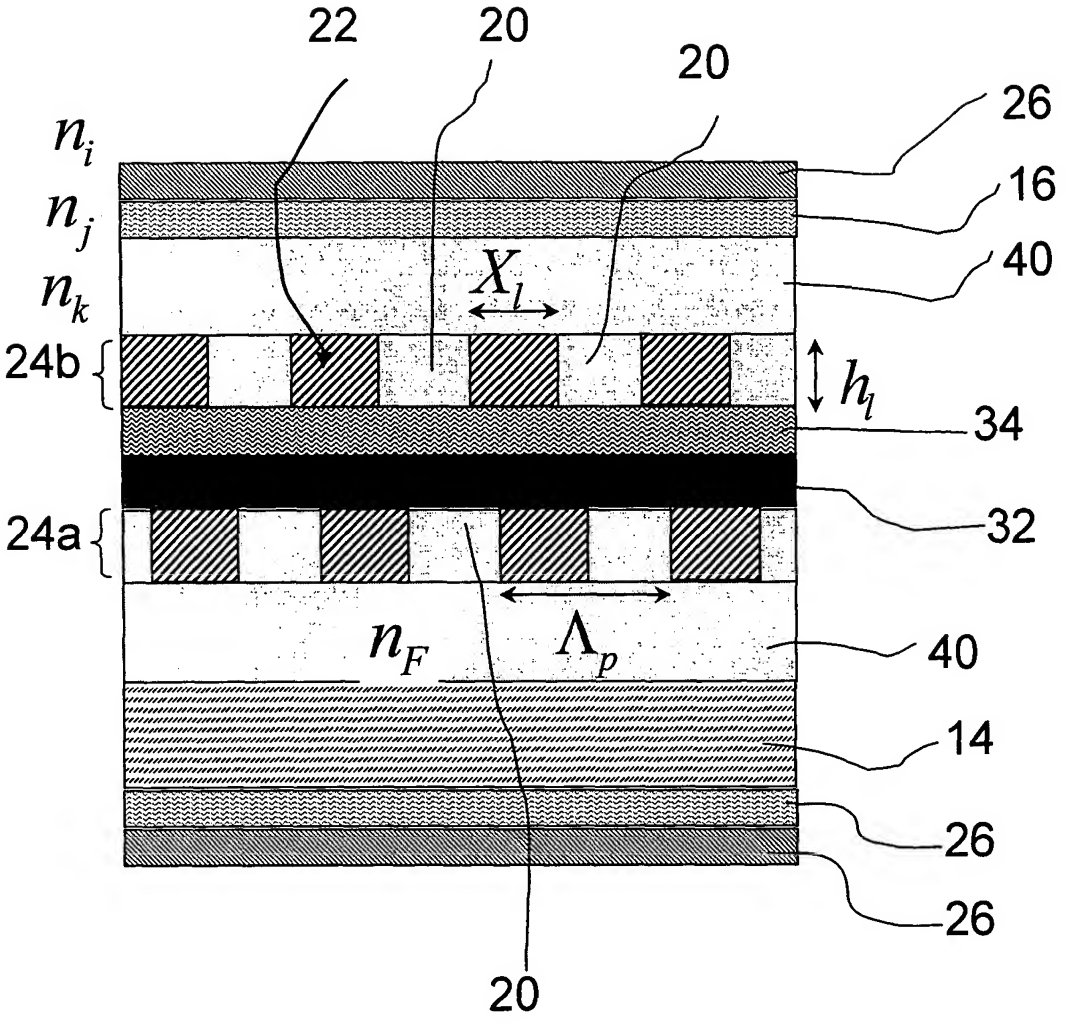
22
20
20
26
n_i
n_j
n_k
16
40
X_l
24b
h_l
34
32
24a
n_F
Λ_p
40
14
26
26
20

FIGURE 2.

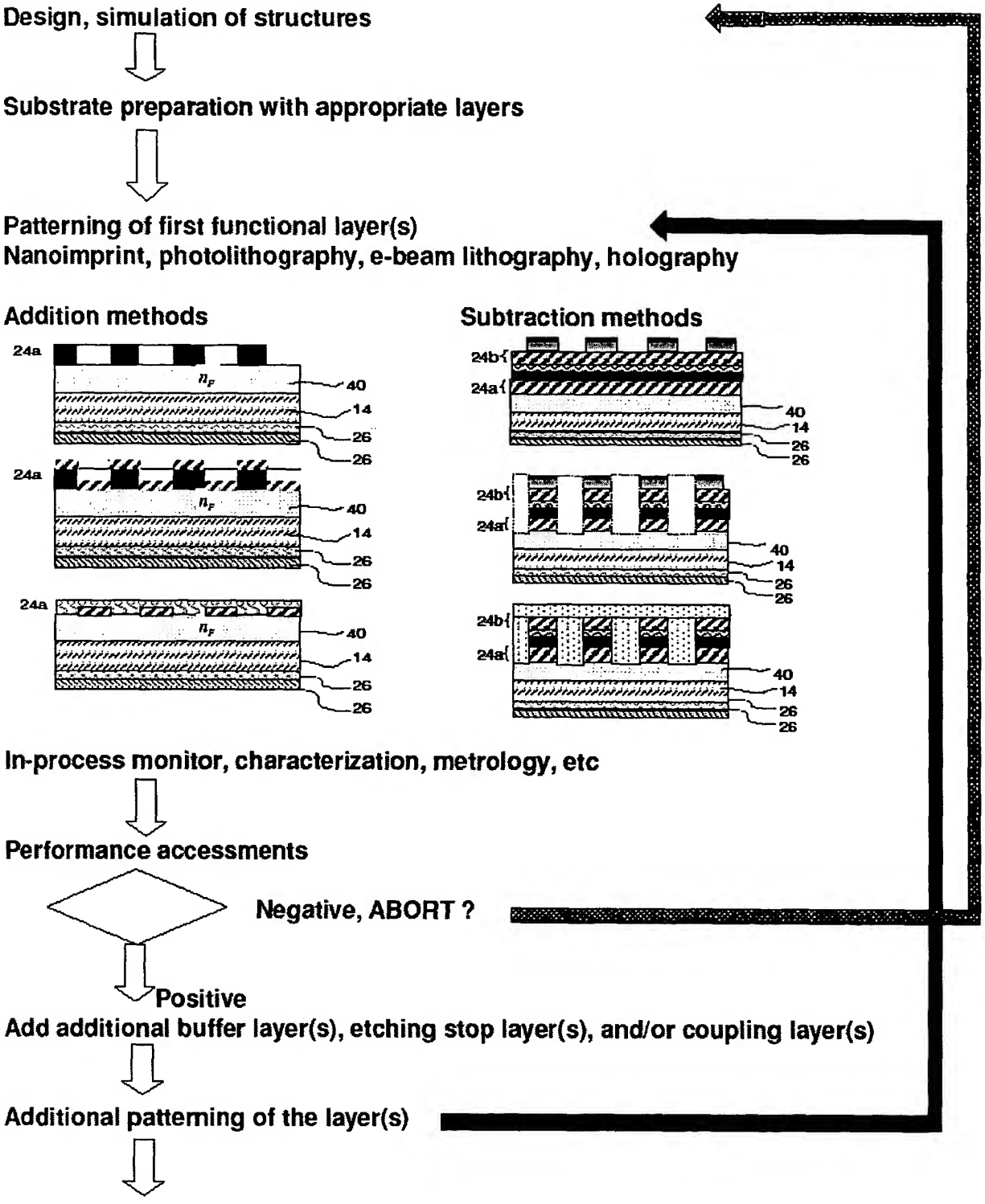
Design, simulation of structures
Substrate preparation with appropriate layers
Patterning of first functional layer(s)
Nanoimprint, photolithography, e-beam lithography, holography
Addition methods
Subtraction methods
24a
24b
n_F
40
14
26
In-process monitor, characterization, metrology, etc
Performance accessments
Negative, ABORT ?
Positive
Add additional buffer layer(s), etching stop layer(s), and/or coupling layer(s)
Additional patterning of the layer(s)

FIGURE 3.

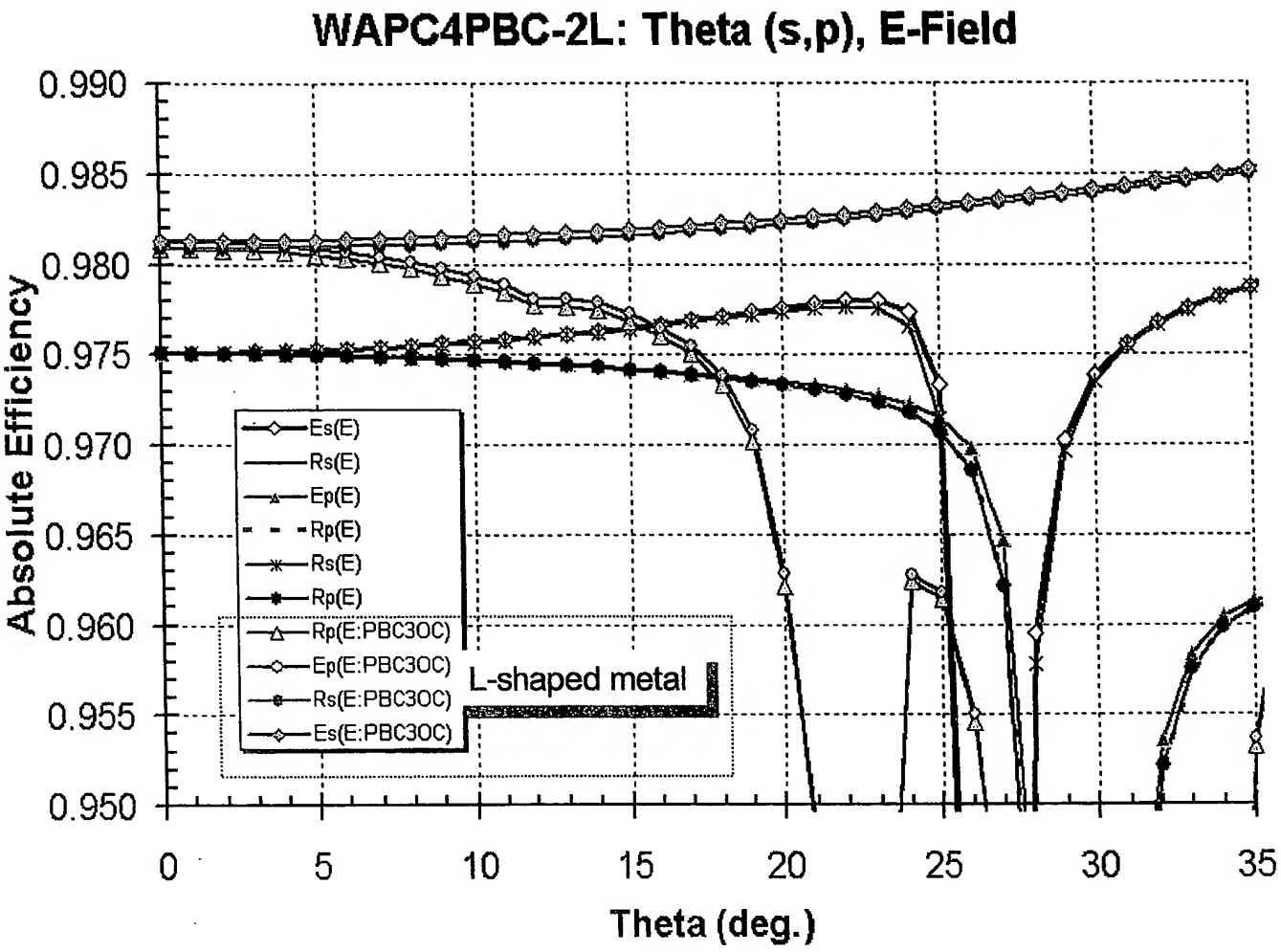
WAPC4PBC-2L: Theta (s,p), E-Field
Absolute Efficiency
0.990
0.985
0.980
0.975
0.970
0.965
0.960
0.955
0.950
0
5
10
15
20
25
30
35
Theta (deg.)
Es(E)
Rs(E)
Ep(E)
Rp(E)
Rs(E)
Rp(E)
Rp(E:PBC3OC)
Ep(E:PBC3OC)
Rs(E:PBC3OC)
Es(E:PBC3OC)
L-shaped metal

Figure 4

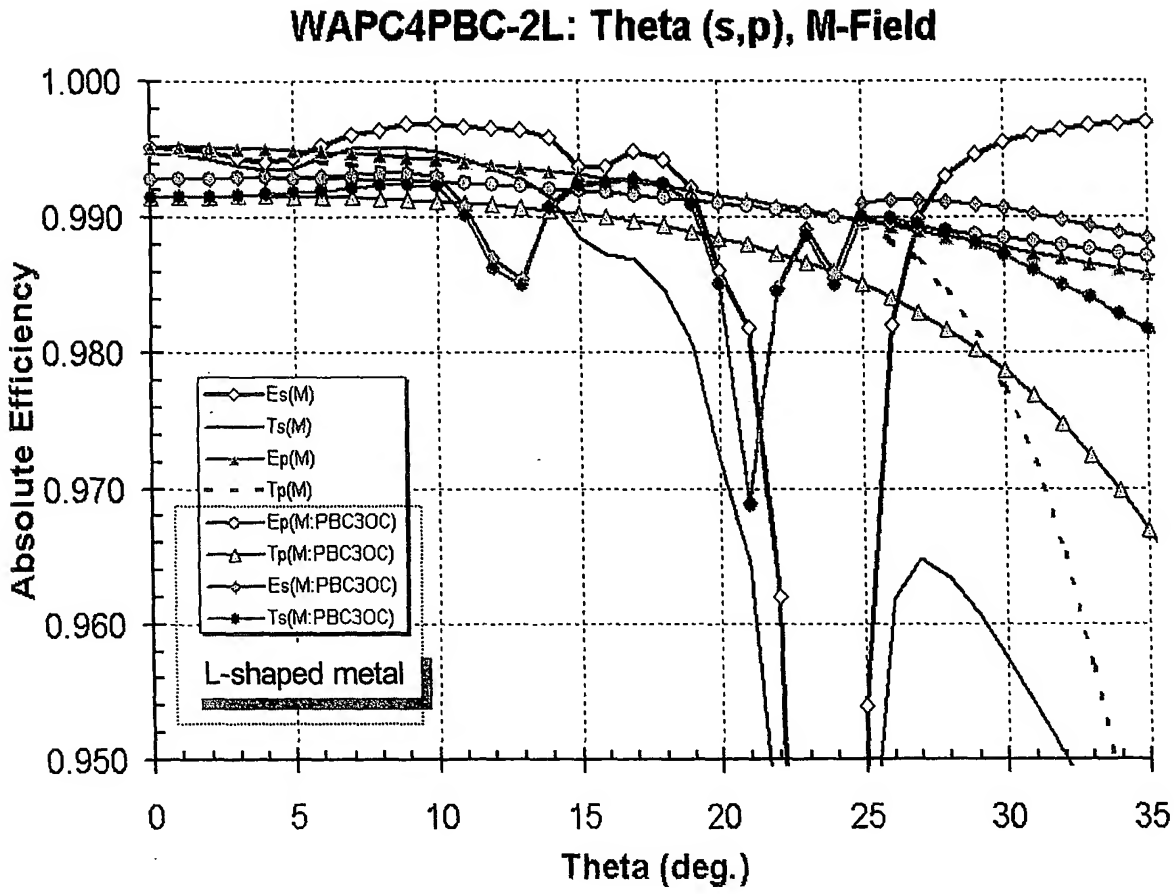
WAPC4PBC-2L: Theta (s,p), M-Field
Absolute Efficiency
1.000
0.990
0.980
0.970
0.960
0.950
0
5
10
15
20
25
30
35
Theta (deg.)
Es(M)
Ts(M)
Ep(M)
Tp(M)
Ep(M:PBC3OC)
Tp(M:PBC3OC)
Es(M:PBC3OC)
Ts(M:PBC3OC)
L-shaped metal

Figure 5

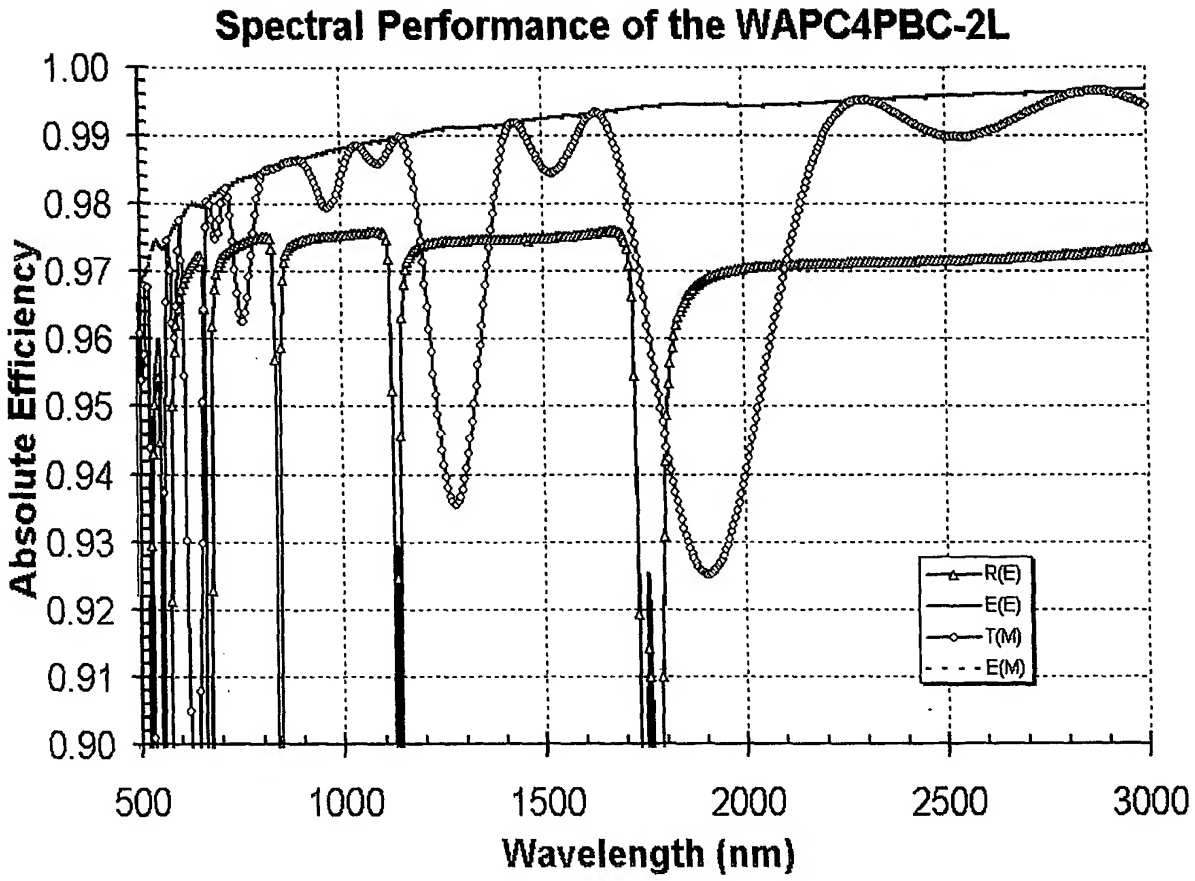
Spectral Performance of the WAPC4PBC-2L
Absolute Efficiency
1.00
0.99
0.98
0.97
0.96
0.95
0.94
0.93
0.92
0.91
0.90
500
1000
1500
2000
2500
3000
Wavelength (nm)
R(E)
E(E)
T(M)
E(M)

Figure 6

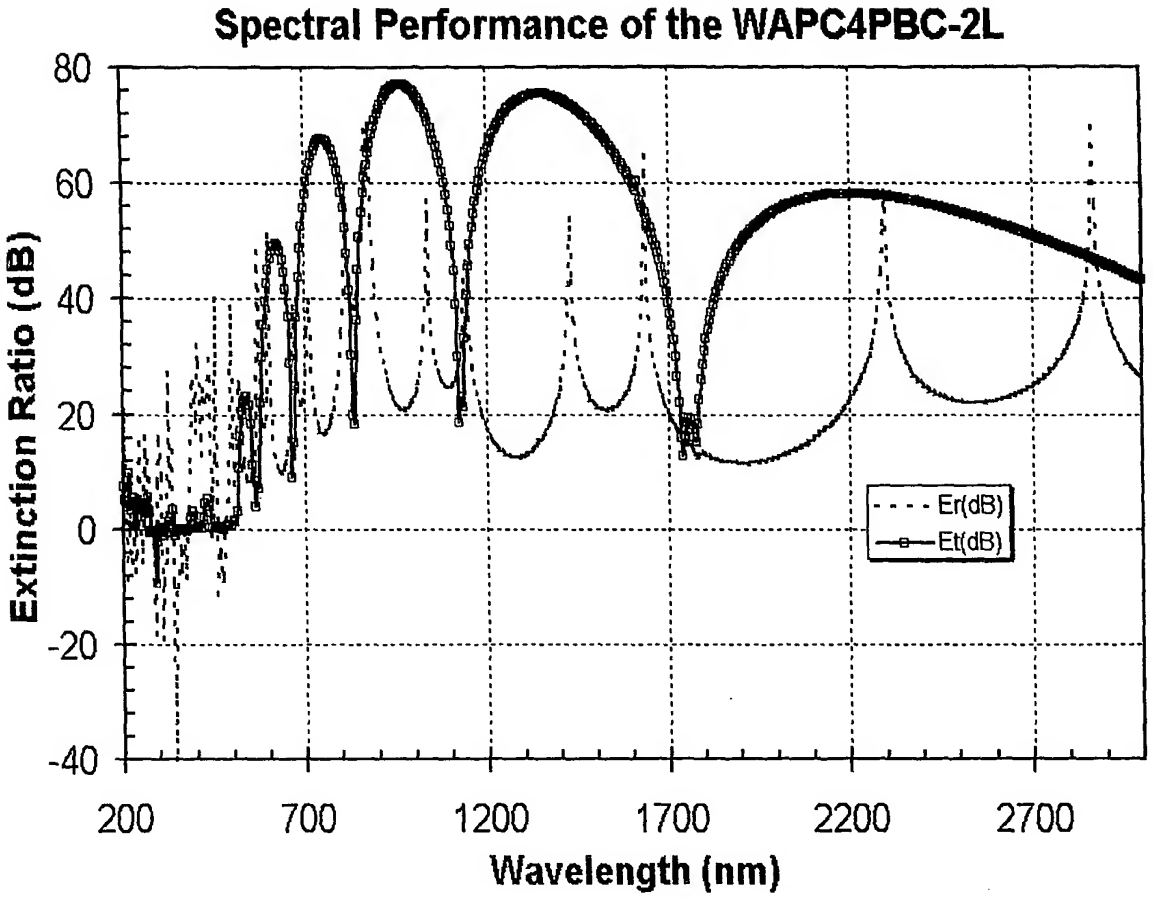
Spectral Performance of the WAPC4PBC-2L
Extinction Ratio (dB)
80
60
40
20
0
-20
-40
200
700
1200
1700
2200
2700
Wavelength (nm)
Er(dB)
Et(dB)

Figure 7

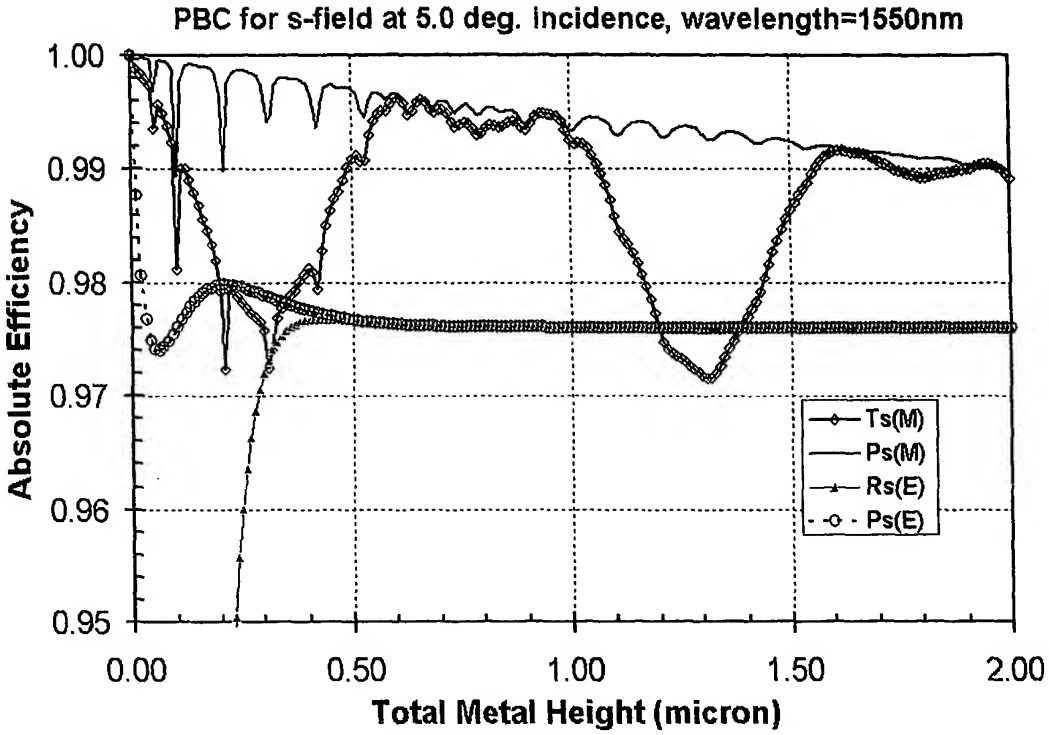

Figure 8A

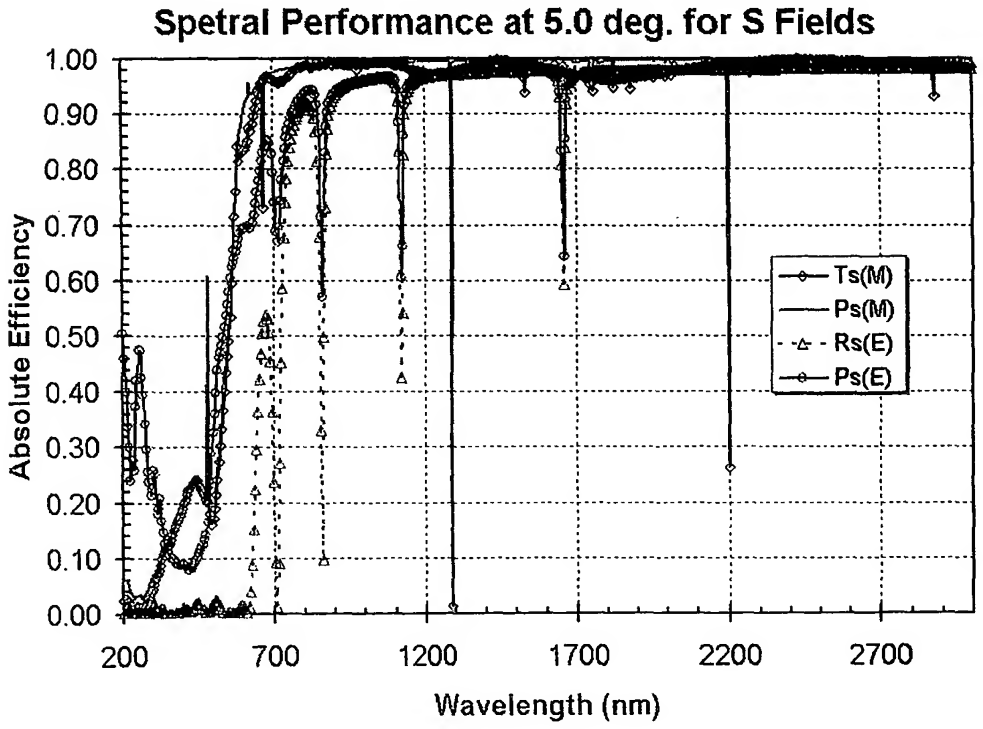

Figure 8B

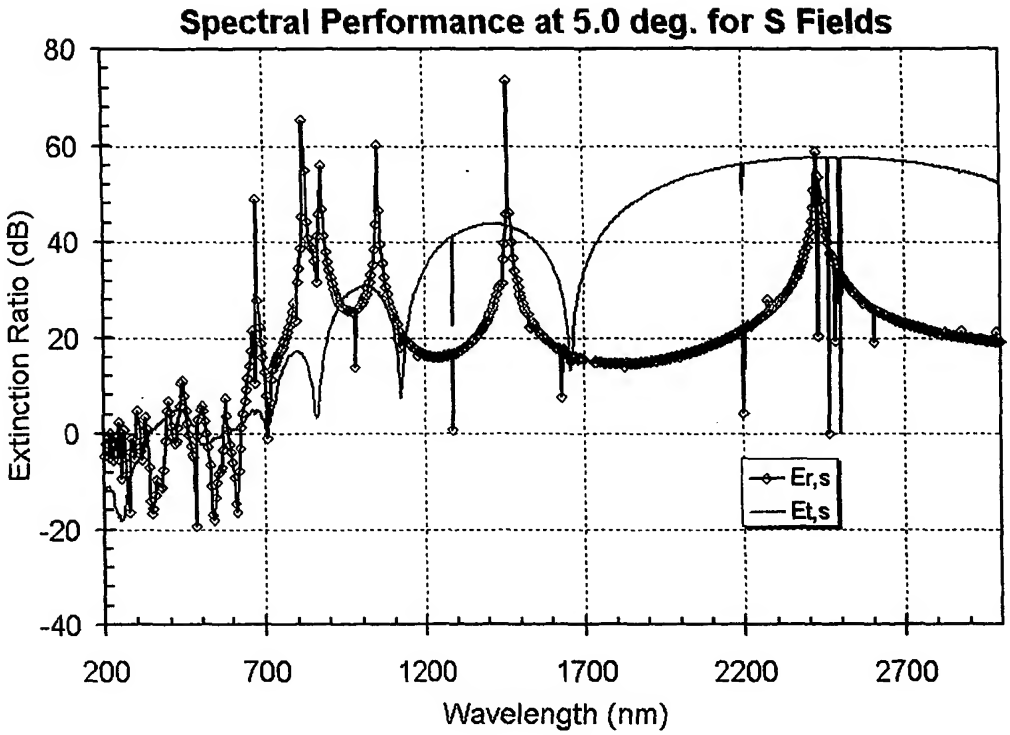
Spectral Performance at 5.0 deg. for S Fields
Extinction Ratio (dB)
80
60
40
20
0
-20
-40
200
700
1200
1700
2200
2700
Wavelength (nm)
Er,s
Et,s

Figure 8C

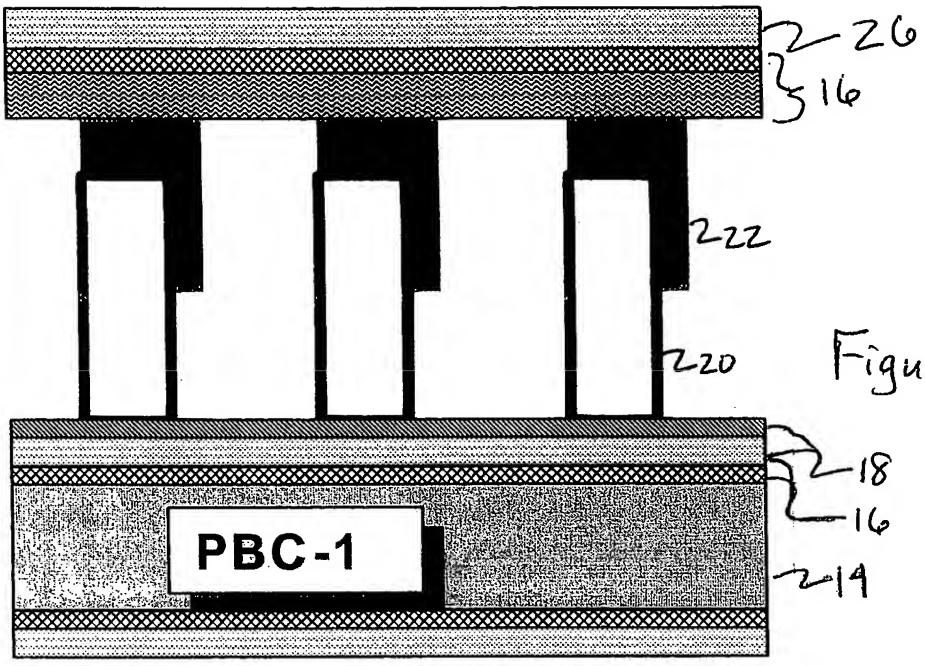

Figure 9A

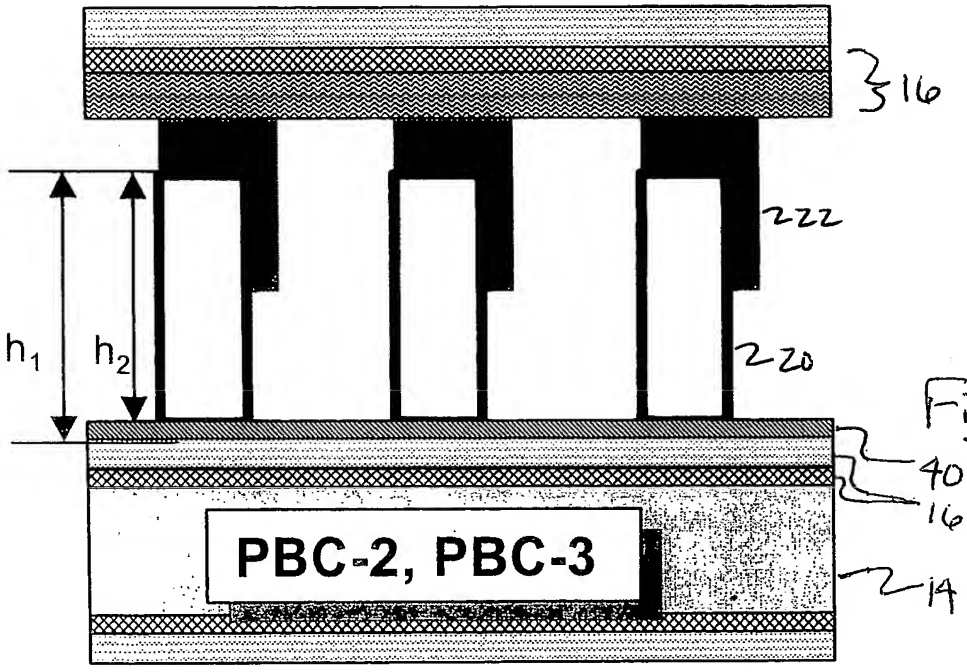

Figure 9B

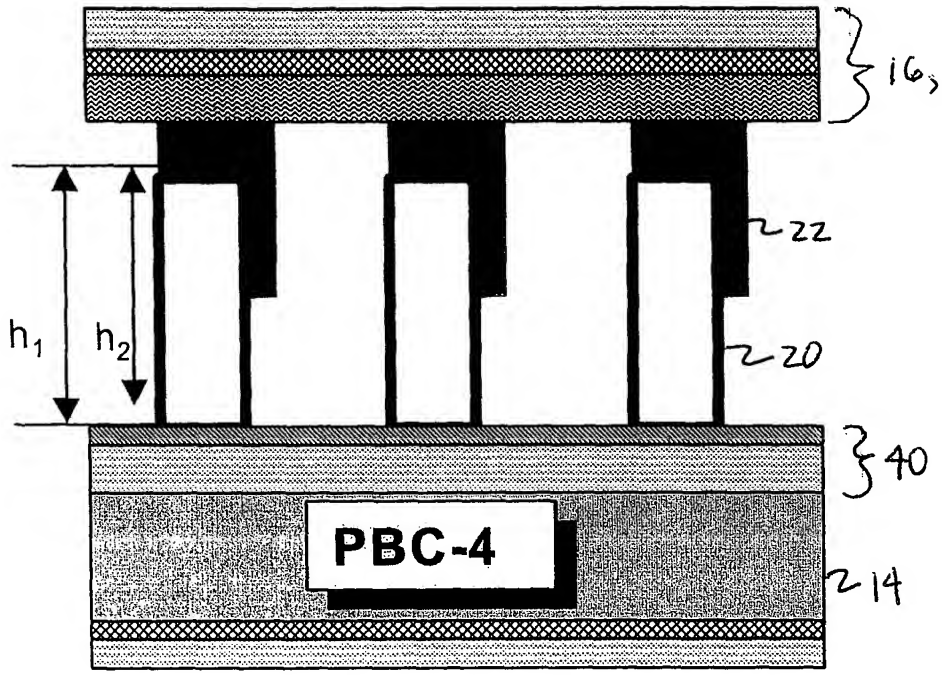

Figure 9C

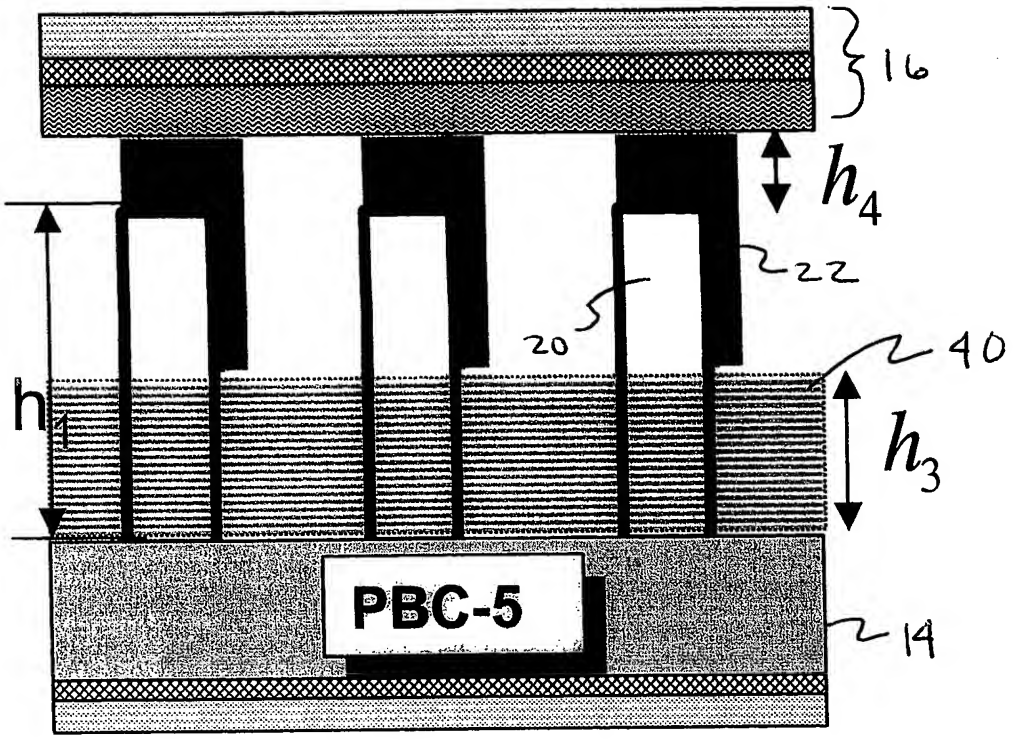

Figure 9D

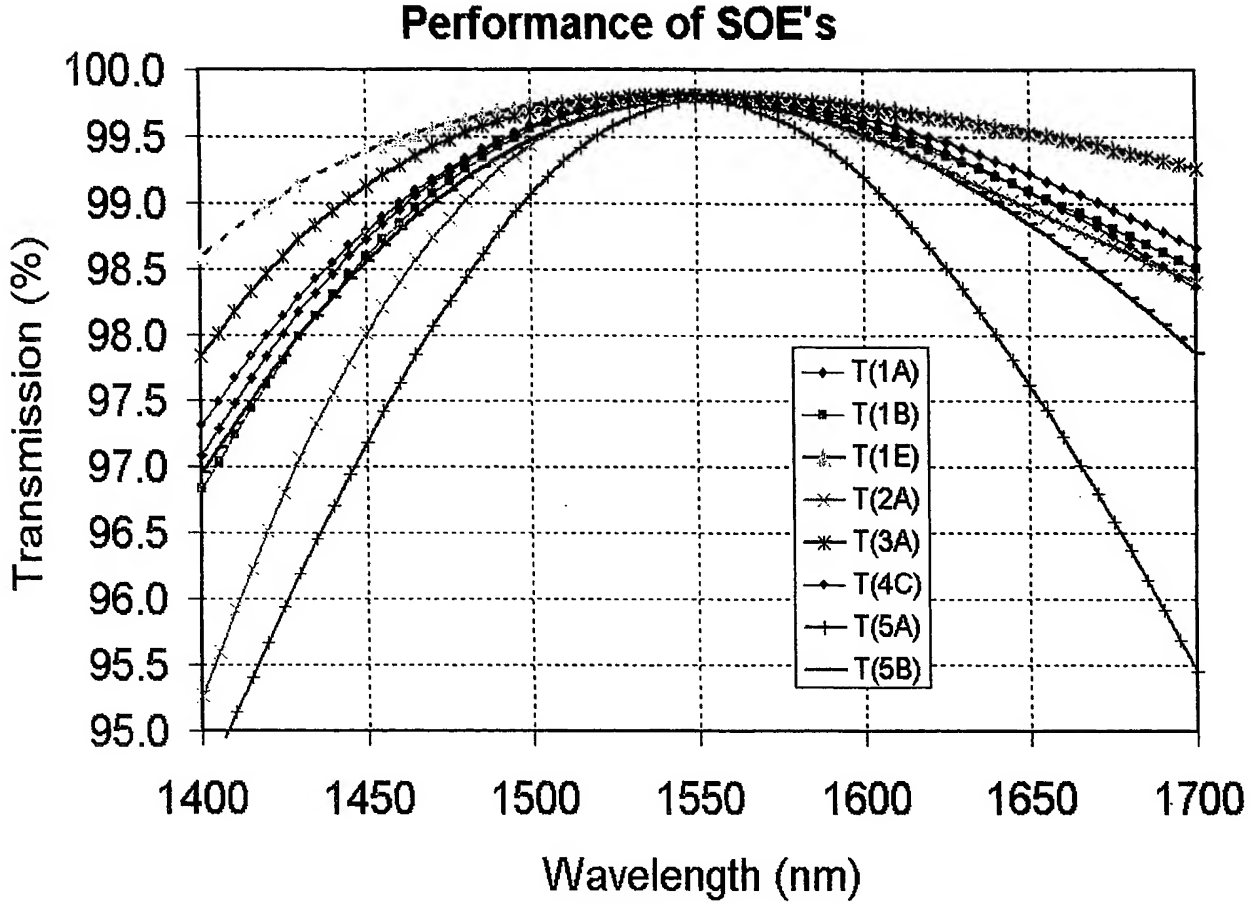
Performance of SOE's
100.0
99.5
99.0
98.5
98.0
97.5
97.0
96.5
96.0
95.5
95.0
Transmission (%)
1400
1450
1500
1550
1600
1650
1700
Wavelength (nm)
T(1A)
T(1B)
T(1E)
T(2A)
T(3A)
T(4C)
T(5A)
T(5B)

Figure 10